IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application. Claims 2, 3 and 10 have been amended and claim 8 has been canceled as follows:

Listing of Claims:

Claim 1 (original): An optical functional waveguide comprising:

a substrate;

a clad formed on said substrate;

a core which is formed in said clad and serves as an optical path;

a plurality of groove structures formed so as to align at a predetermined interval along the optical path and fragmentize the optical path and being filled with a material having a refractive index temperature coefficient different from that of said core; and

a heater electrode interposed between said plurality of groove structures provided along the optical path.

Claim 2 (currently amended): An optical functional waveguide according to claim 1, wherein said plurality of groove structures are lens-shaped ~~comprising:~~

~~a substrate;~~

~~a clad formed on said substrate;~~

~~a core which is formed in said clad and serves as an optical path;~~

~~a plurality of lens-shaped groove structures formed so as to align at a predetermined interval along the optical path and fragmentize the optical path and filled with a material having a refractive index different from that of said core; and~~

~~a heater electrode interposed between said plurality of groove structures provided along the optical path~~.

Claim 3 (currently amended): An optical functional waveguide according to claim 1 [[or 2]], wherein at least one of the end faces of said plurality of groove structures is tilted from a position perpendicular to the optical path.

Claim 4 (original): An optical modulator comprising the optical functional waveguide according to claim 1 and modulating amplitude or phase of light.

Claim 5 (original): An arrayed waveguide grating comprising the optical functional waveguide according to claim 2 in a slab waveguide.

Claim 6 (original): A dispersion compensation circuit comprising the optical functional waveguide according to claim 2 in the vicinity of a coupling portion that two arrayed waveguide gratings are coupled to each other in a cascade.

Claim 7 (original): A dispersion compensation circuit comprising:

a mirror provided in a waveguide and arranged in the vicinity of a spectrum plane; and

the optical functional waveguide according to claim 2 arranged in the vicinity of said mirror.

Claim 8 (canceled)

Claim 9 (original): An optical functional waveguide according to claim 2, wherein said groove structure is provided at a slab waveguide side of a coupling portion of the slab wave guide and a single mode waveguide.

Claim 10 (currently amended): An optical functional waveguide according to claim 1, wherein said plurality of groove structures are wedge-shaped ~~comprising:~~

~~a substrate;~~

~~a clad formed on said substrate;~~

~~a core which is formed in said clad and serves as an optical path;~~

~~a plurality of wedge-shaped groove structures formed so as to align at a predetermined interval along the optical path and fragmentize the optical path and filled with a material having a refractive index different from that of said core; and~~

~~a heater electrode interposed between said plurality of groove structures provided along the optical path~~.